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ABSTRACT

Scotland has a system of national surveys of achievement intended to provide information for educational policy and practice. Testing of middle school students in the areas of mathematics, reading, English, and science, is designed to provide national information as opposed to information about individual pupils, schools or local authorities. This paper examines an early series of national surveys (1932, 1953 and 1963) and finds that (1) if surveys are to produce an impact on educational policy, short-term focused studies rather than a long-term series of national surveys addressed to general issues are indicated; (2) knowledge of specifics relevant to particular local circumstances are usually sought; (3) national tests will inevitably have curriculum backwash and will involve pressure towards a centrally determined curriculum; and (4) research that is to have an impact on classroom practice must be teacher tested and based upon careful research and development in classrooms. It is concluded that surveys are unlikely to address the crucial issues of the time and are likely to be misleading to any individual practitioner. (PN)

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THE IMPACT OF SCOTTISH NATIONAL SURVEYS OF ACHIEVEMENT ON POLICY AND PRACTICE

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THE IMPACT OF SCOTTISH NATIONAL SURVEYS OF ACHIEVEMENT ON POLICY AND PRACTICE

W B DOCKRELL, DIRECTOR, SCRE

INTRODUCTION

Like many other countries, Scotland has a system of national surveys which are intended to provide information which would serve as a basis for educational policy and practice. These surveys are carried out in Scotland in the middle years of schools, roughly the equivalent of Grades 4, 7 and 9. The reasons for this choice are practical. It was thought that it would be difficult to get adequate information economically about younger children, and that information about older children was provided by our system of external examinations taken at the end of Grades 11 and 12. Over 75% of the Grade 11s take these examinations in Scotland, so information is believed to be available on achievement at this point. (SED 1985).

The areas of fundamental importance are mathematics, reading, English written and spoken and science. Consideration has been given to extending the testing to cover other areas, but it has not yet been done because these areas are thought to be either too difficult or too controversial.

Our programme of testing is designed to provide national information only and not information about individual pupils, schools or local authorities. The scope of the testing is wide, and no individual child takes more than a small part of any test. The numbers of children tested in any school are too small to provide information about that school. Even in our large authorities where all parts of the tests will have been administered to some pupils the composite score would not provide a representative score for that authority. It is only when they are aggregated at national level that the information is representative of the group as a whole. This is a deliberate policy decision, and not an accidental consequence of the sampling procedure.

It has been argued that in an educational system like our own where the approach is organic rather than mechanistic, and we expect change to be incorporated into the system and not imposed upon it, the impact of national surveys of achievement will necessarily be slow to manifest itself. Our present programme of testing dates back only five years, so we cannot expect to observe any consequences yet. What I will do in this paper, therefore, is refer back to an early series of national surveys, and look at their impact on educational policy and practice.

The Background

Scotland has a long tradition of national surveys, dating back to 1932. In June of that year an age cohort of some 87,498 children was tested. The results were reported in impressive detail, and with commendable alacrity in the following year.(SCRE 1933). It was intended from the beginning that there should be a series of such surveys, however, by 1942, when it might have been appropriate to repeat the test, British attention was focussed on other matters. It was not therefore until 1947 that the next survey was carried out.

These data were carefully gathered and reported in great detail.(SCRE 1949, Maxwell 1969). They have been used as a basis for secondary analysis on many occasions since, the most recent that I am aware of is in "As Others See Us", (Hope, 1984) a study of schooling and social mobility in Scotland and the United States. These early studies were of ability as measured by intelligence tests. What they provided was experience and expertise in gathering and analysing data from national surveys.

When attention, therefore, shifted to surveys of achievement, scholastic surveys they were then called in Scotland, there was an organisational structure with the required technical competence and experience of the practical difficulties that were likely to be encountered. These surveys carried out by my predecessors provide a good case study of the contribution of national surveys of achievement to policy and practice. The first reason is that these surveys were carried out sufficiently long ago for us to be able to assess their impact and use them as a guide for our own practice. A second reason for choosing them is that these particular surveys were examples of good educational research. They were carefully planned and meticulously carried out. I won't justify that assertion in this paper, I will simply invite anybody interested to consult the published reports. (SCRE 1963, SCRE 1968). A third reason is that the studies did produce valid findings. Much research of all kinds, including educational research, leaves us very little wiser than we were before we began. That is not something to be surprised at or something to be concerned about. It is to recognise the limitations of the human endeavour. In this particular case, however, valid findings were produced. A further reason for choosing these studies is that their findings had relevance at various levels, relevance to policy at national and local level,to teaching and to parents. A fifth reason for selecting them for consideration is that these studies are relevant to general and contemporary issues and not simply to concerns of that particular time and place. Finally, and perhaps most important for this symposium, these surveys are important because they show the advantages and the limitations of survey work. What can be learned from surveys and what cannot.

The context.

The Scottish system is formally a devolved system with the local authorities responsible for education in their areas. The Local Education Authorities "are responsible for the curriculum taught in their schools, headteachers normally exercising that responsibility on their behalf" (SED, 1977). The Scottish Education Department oversees the work of the schools, and does take the initiative in proposing curricula and teaching methods. There is a central inspectorate with responsibility both for judging the efficiency of individual schools and defining the needs of the educational system as a whole. There is no centrally prescribed curriculum, no list of approved textbooks. A system like ours, therefore, permits a great deal of diversity and there is substantial variability, particularly among primary schools. In these circumstances it is more difficult to monitor standards of achievement than in more centralised systems, where expectations are more precisely defined. Nonetheless, it was believed in 1953 that there was sufficient consensus for a single set of generally applicable tests to be devised and administered.

The 1953 Scottish Survey

The three main purposes were to provide information about what pupils know and what they can do in areas of fundamental importance, or in areas of particular relevance to current policy. Second, to provide evidence of comparative standards over time, and finally to investigate ways of using evidence to improve teaching and learning. These early studies were limited to one age group corresponding roughly to Grade 5.

The major purpose of the first study was, as with our current series, to obtain information about current standards and in the same areas of Arithmetic and English. We took then the position that we now take, that the result should be published in a form in which it was not possible to compare results of individual schools or of separate education authorities. No reference was made at this stage to comparisons over time, but there was considerable emphasis on providing information on current policy issues, e.g. acceleration and retardation, the comparative standards in urban/rural schools, the effect of school size and on class organisation - "on individual as compared with class methods". (SCRE 1963).

As with the earlier surveys, the results were given in full and informative detail, and a substantial number of conclusions was drawn. These early researchers were pioneers, and were perhaps relieved to find that their hopes

had been justified and it was possible to carry out a national survey, though they did recognise there were considerable difficulties. The principal one they believed was "the diversity of work normally professed by an age group. At the 10-year-old level chosen for the survey, this was particularly evident in the subject of arithmetic, where the complicated British tables of money, length and weight were introduced in different ways, at different times, in different areas". (p.185). The report does go on to say that "it will be folly to attempt to standardise curricula in this field until it has been shown that one method is superior to others". (p.185).

This latter quotation highlights two issues which face us in our current surveys. The first is that great variation in test scores which reflect not long term differences in level of attainment but short term consequences of different teaching methods. The second is the danger of a backwash in the schools. If there are standard assessments administered nationally it may well be assumed that these define a national curriculum. Even in a de-centralised system schools will be under pressure to adopt this putative national curriculum.

The report did try to answer some, at least, of the original questions. There was no association between type of area (city, large town, small town, rural) and level of performance. There were no differences among the ten regions. The report discreetly passed over the differences which were in the data which indicated, for example, that the scores of children in the Glasgow area were generally low, and those of pupils in the Edinburgh and Dundee areas were generally high. On the question of class size, the report was careful to draw attention to the various factors that might be involved, and rightly concluded that "it will be apparent that there is no regularity about the results. It does not follow that the size of class has no effect on attainment. The conclusion to be drawn is rather that it will be difficult to obtain definite conclusions on this topic with an experiment which is not specifically designed for the purpose". (p.162). On the question of school size, an issue which with falling school rolls has obtained even greater prominence in Scotland in recent years, the conclusion was "the performance of the pupils in these schools (the smaller ones) was on the whole as good as that of pupils in larger schools. In particular, pupils from one teacher schools reached the same standard as those attained by pupils in schools where there were more than six teachers". (p.168).

That early report again anticipated the pattern of later years. Much of the report was focussed on curricular matters. The panel dealing with Arithmetic arrived at very specific conclusions "Division by factors is undesirable in the primary schools... more attention should be paid to the lay-out of short division sums... there is need for standardising the notation used in recording the time of day by the clock. The panel recommends that for written expression it should be in the form 8.50 a.m.... Use of written working in Arithmetic facilitates accuracy. Further, use of working is helpful to a teacher in diagnosing a pupil's difficulties...A standard practice is required for recording remainders in division... The final point ... is partly a question of the use of English. It was evident that the various aspects of teaching arithmetical problems required further consideration, e.g. the need for accurate reading of the question and for noting units used". (p.186).

The panel dealing with the English tests arrived at equally definite conclusions. "The tests in English usage demonstrated the need for persistent oral practice in accepted speech forms and a restrained use of pencil and paper exercises for occasional testing... Reading as a thought-getting process seemed insecure. It is possible that acquaintance with forms of verbal testing and the common use of reading textbooks with exercises make it all too easy to suppose that pupils working through a series of questions have understood what they are reading. The tests in this survey showed unmistakeably that many pupils dealing as well as they could with details have not first grasped the general meaning of what they had read". (p.187).

A survey which had begun with primarily structural objectives had been used to draw mainly curricular conclusions.

The 1963 Survey

The second survey had objectives which were apparently no more detailed than those of the earlier one. Not surprisingly, the third of the current objectives, i.e. comparison over time, was the major concern, but it was hoped to relate any changes to the effects of new teaching methods which had recently been adopted in some Scottish schools and which were shortly to be endorsed by the Scottish Education Department (SED 1965) and recommended for general acceptance.

The same tests were used as had been used on the previous occasion.
The answer to the basic question about change in levels of attainment was answered in the title of the second report. That book was called "Rising

Standards in Scottish Primary Schools". There had been an improvement in performance on each of the tests used "the sizes of the gains are about one third of a standard deviation or roughly the gains that would be made in six months by an average pupil". (p.85). These changes were related to ability, sex, types of area, region, sizes of schools, aspects of the tests, and so on. "The gains have been made by pupils of all levels of ability, by boys and girls to the same extent, in all regions of the country and in all sizes of schools...while performances on some items show greater improvement than on others the gains have been spread over nearly all of the items of the test. They are attributable partly to greater speed and response, and partly to greater accuracy when the responses have been made". (p.85). The researchers dismiss test sophistication as a possible cause of this change.

They looked first at administrative factors. They concluded that "areas still using attainment tests (on an area-wide basis) showed gains about twice as large as those in other areas". (p.85). "Higher attainments in the English test go with greater provision of school libraries". (p.85). They point out cautiously "A cause and effect relationship cannot be assumed" (p.85). for school libraries, but they had no such reservations about the use of attainment tests. There was then an acute shortage of teachers. They concluded "no association has been found between attainments and the shortage of teachers" (p.85) but again caution rules the day, and the report points out "the sample data provided only scanty information on this point". (p.85). On administrative matters they generally recognise the risks of drawing conclusions from survey data.

When it came to matters of curriculum or instruction they were willing to make some generalisations. On Arithmetic, for example, "Computational errors still persist. Fractions are still being treated by some pupils by rote, and long division is still insecure. The concept of zero as a place-holder is unfamiliar to many pupils". (p.128).

In English, some of the deficiencies noted ten years earlier were now less conspicuous. "Pupils were reading with more skill and becoming more independent in their thinking about what they read". (p.128). They could not, however, resist drawing special attention to a specific point. "A disappointing feature for Scots was that the Scots poem showed the least gain of any section. Printed Scots is becoming completely unfamiliar to Scottish children". (p.128). By Scots is meant the language in which Burns wrote. I might point out that it is completely unintelligible to English adults, both in its written and oral forms. The report noted that Scots words were becoming even less familiar than they had been ten years earlier. "To the majority, the Scots forms were not

intelligible, and from the errors in other words not dialetical it was obvious that a large number did not begin to understand what the lines were about. Neither did they have the benefit of hearing them read or spoken. The 1953 comment is reiterated. 'When one considers the extent to which Scots of some kind is spoken and understood, one can only conclude that Scots in print is completely unfamiliar to three-quarters of the pupils of this age group... it would appear desirable to include some printed Scots among the reading material for Scottish children'." (p.100).

The Impact of the Studies

The surveys were carefully designed, meticulously carried out, comprehensively reported and many conclusions were drawn which were relevant to policy and to practice. What impact did they have? Many of the findings at national level were primarily of negative value. There were no differences among pupils in different types of areas so that issue could be dismissed. There was no need, for example, to concentrate the resources on the cities or on the rural areas. Needs were specific and not related to type of area. The same was true of the geographical regions. The survey produced no evidence of regional differences, and therefore no arguments for deploying resources in that respect. There was no argument for more schools, more teachers, or more instruction materials in one part of the country rather than in another. Educational priority areas, such as those that were established shortly after the results of the survey were available, could not simply be defined in terms of general types, or in terms of geographical region. Much more focussed intervention than that was necessary, and therefore more specific information.

Another apparently negative piece of information, but one still relevant to policy, both national and regional, was the finding that pupils from smaller schools attained practically the same standards as those in larger schools. Since the publication of the report we have experienced in Scotland, and we are still experiencing, the closing of small one and two-room rural schools. The evidence of the survey made it perfectly clear that such action was not justifiable on the basis of pupil achievement. The arguments for these changes which proceeded on a massive scale in the 60's and 70's, and which still continue, has to be on the basis of cost or other social values.

There were two more positive pieces of evidence. The first was that as quoted above, the aims and achievements were greaer in those areas where the local authority continued to make use of a battery of attainment tests on the

completion of primary schooling. An obvious inference would be that the existence of a formal external assessment of this kind has beneficial effects upon attainment. Also the information about library provision in primary schools has equally important implications. "Pupils in schools with libraries of various types had made higher scores in the English test than pupils not having these facilities". (p.80).

The process of policy formation is not one that is easily unravelled, but there is no evidence that even one small school was spared because of the findings of the research. I have not seen this research cited during the debate that has taken place over the last ten years and which continues today. The arguments for closing small schools are predominantly economic, though the social development of the children is sometimes mentioned. The protagonists of the small schools usually advance community values and the deleterious effects of travelling on their side.

The impact of the finding on the use of attainment tests at the end of primary school is even clearer. All the authorities have now abolished them, in spite of the evidence that their use was positively related to improvements in attainment. I can find no evidence that the provision of school libraries has been based on the findings of the scholastic surveys. In the present period of retrenchment I have seen no reference to the importance of maintaining the school libraries because of their anticipated effect on achievement in English.

As far as I can see the recommendations which have had relevance to national policy have been ignored. They have made no contribution to the debate on these issues. In the light of the evidence on the impact of research and public policy-making, this is perhaps not surprising. It is, nonetheless, disappointing and discouraging. If the evidence from surveys is to help to determine national policy then the information provided must speak to contemporary concerns.

In any case, the information from survey studies is partial and may therefore be misleading. Perhaps the administrators who abolished attainment testing were right. A notion of what primary education is meant to achieve is not adequately defined by formal tests. Any advantage accruing to schools from use by the authority of attainment tests may well have been outweighed by other more negative effects on the curriculum in the schools.

There are many important issues where the survey evidence is far from conclusive. The authors of the 1953 report said, for example, "An analysis of the effect of class size has yielded no clear conclusions. It appears that an investigation of this topic would require a specific design in which the accepted principles for organising classes would be altered for the purposes of the experiment". (p.168). This is a conclusion which might have been applied to other findings also. Were administrators right to ignore conclusions based exclusively on formal tests of Arithmetic and English which could not take into account a full range of contextual variables? More focussed studies related to the effects of particular administrative arrangements are necessary to provide a balanced picture for the guidance of policy makers.

Research evidence, if it is to help to define national policy, must speak to immediate issues. It is unlikely that accidental evidence gleaned in the process of a survey and simply recorded in technical reports will have any influence at all. Specific information and explicitly focussed studies must be produced at the right time.

Impact on the Curriculum

What contribution did the surveys make to practice in the schools?

There have been no systematic studies which have attempted to relate changes in classroom practice to the findings of the surveys. Shortly after the appearance of the second report the Scottish Education Department published what is known in Scotland as "The Primary Memorandum" (SED 1965) advocating major changes in the practice of Scottish primary education. No reference was made in that report to the findings of the surveys. A more recent report, incidentally, has suggested that the changes recommended by the Scottish Education Department have not in fact been adopted in the schools. (SED 1980).

I referred above to the teaching of Scots as a written, or indeed an oral, language in the primary schools. The issue has just become a matter of concern to the media, and there have been a series of television programmes. The official survey carried out recently ignored the question. No attempt was made to test children's ability to read or speak "the guid Scots tongue". I was in a primary school in January when I was preparing this paper, and was taken aback to see a display of books in Scots and school textbooks also in Scots. I thought that I might have been mistaken and that there was in fact more teaching of the language than I had believed. I looked at the textbooks and found that they were printed in the 1940s, and was told by the staff that the display was

for Burns Night. That is the one occasion in the year when attention is given both in the schools and out of it to writing and speaking in Scots. As far as I can see, the recommendations had no impact at all.

Teachers have two interests. The first is in the standards of their own pupils compared with those in other similar schools. As with wages, our reference groups tend to be local and individual rather than national and general. It is a question of each teacher defining for himself what standards are appropriate in his circumstances, finding out whether his pupils are reaching those standards, and to take the appropriate action.

The teacher's other interest is in what he should teach, and how he should teach it. National surveys cannot help any individual teacher to decide what teaching scheme should be used next year, nor how it should be used, and still less the balance of work for particular pupils.

The specific advice to teachers in the surveys illustrates these limitations. Did many schools cease division by factors, or pay more attention to the layout of short division sums, or provide oral practice in accepted speech forms as a result of the publication of these findings? If they did, how many teachers would now think that was good advice? As with other general issues, the specific recommendations relate to a particular perception of the purpose of school which is not now so widely held, and is indeed at variance with the official position.

Even to those who do accept the assumptions of the authors, how should a particular teacher know whether the more attention which it is held should be paid nationally to the layout of a short division sum applies to his class? If he was already providing more attention than the average should he provide not more but perhaps less? Is it not likely that those already giving considerable attention to the layout of short division sums would feel strengthened in their convictions and provide even more? Would not those who were failing to give sufficient attention have overlooked this point in the recommendations of the report?

Findings from national surveys may or may not apply to any particular teacher, and whether any teacher will take account of them will depend very much on their own values and their own perceptions of their current practice. In the case of the standardised notation for the recording of time of day, for example, the survey merely indicated variation in practice. The panel's preference for a particular form arose not from the survey but from their own general experiences.

Information which would be relevant to specific questions cannot, for the most part, be satisfactorily obtained from a national survey.

Similarly, a teacher's decision about the emphasis to be given to layout in teaching Arithmetic is more likely to be based on his own experiences of the situation around him than on any information that the nation as a whole did well or did badly in this respect on a general test. Individual teaching decisions are not made on the basis of general tests, but on the basis of specific information which relates to the teacher's own objectives in the circumstances in which he is operating.

Finally, there is an important issue with national surveys. That is the extent to which they tend, deliberately or not, to lead to the development of a national curriculum. The general trend of the Scottish reports is towards a greater standardisation of curriculum and method. It is difficult to see how it could be otherwise. A few quotations will illustrate the point. "Examination of the errors demonstrates forcibly the need for persistent oral practice of correct forms and usages... Although pencil and paper must be used for testing this kind of usage, it is not the best medium for teaching". (p.106). "The use of subordination is only developing and it is inadvisable to force this development especially by teaching the relative pronouns too early". (p.107) "The use of the apostrophe...is not taught...the correct form should be shown and explained". (p.107). "It would appear desirable to include some printed Scots among the reading material for Scottish children". (p.100). The advice may be good or bad, but the conclusion is clear. Either one has a national curriculum which includes these elements which the authors thought were important, or one maintains the traditional British division of responsibility placing trust in the professionalism of the teachers. The report says that "it would folly to attempt to standardise curricula until it has been shown that one method is superior to others...if it were possible to determine a standard order for teaching that would be a useful contribution to teaching". (p.185). The position of the authors of the report is akin to that of St Augustine who is alleged to have prayed "Lord, make me chaste - but not just yet".

The authors of the survey wanted their cake and halfpenny as well. They wanted to have in effect a national curriculum but did not recommend so directly, nor did they recommend any mechanism for establishing or enforcing it, perhaps because they anticipated rightly that any such recommendation would meet overwhelming objection from the teachers' organisations.

In the case of the recommendations which were relevant to classroom practice,

the authors of the report failed to grasp the nettle and draw the conclusion that was implicit in more of their recommendations, i.e. that there should be a national curriculum. If there was not to be a national curriculum then the recommendations were to individual teachers, but as pointed out above they were not in a form which provided useful guidance to individual teachers.

I have discussed this issue of curriculum guidance at length because the informal judgement of the English Department of Education and Science is that the most significant contribution of the English surveys has been their effects on teachers. A similar position is being advocated in Scotland. I am suggesting that reports from national surveys organised in the way that we organised them cannot be of use to individual teachers.

Information for Parents, Employers and Others

While as professionals we are concerned with these matters, general interest is at best sporadic. There are occasional flurries of interest in national standards with headlines in the national press, but they are usually followed by a period of quiescence. A former British Prime Minister, Mr Callaghan, launched what he called "a great debate" on standards in education, but for five years little has been heard about it. There has been a recurrence of interest in recent months. The English Minister of Education, Sir Keith Joseph, has spoken on the matter and there is rumour that Mrs Thatcher will herself try to make an issue of educational standards in time for the next election. It may be that patriotism is the last refuge of the scoundrel, but Mrs Thatcher tried that last time - and it worked, incidentally. This time she will have to play a different card. Perhaps we will be able to say "attacks on education are the last refuge of the discredited Prime Minister".

The call for information about contemporary standards sounds reasonable enough, but it is not at all clear what use this information is. The surveys which were carried out in the 50s and 60s which I am reporting here, and the surveys which we have carried out since in the 70s and 80s have shown that standards are rising, albeit modestly, in Scottish primary schools, but we don't know why. Recording changes as they occur is less obviously compelling on anlysis. It seems self-evident that we should monitor standards over time as a sort of quality control, but what use can be made of such general information?

When Rising Standards in Scottish Primary Schools was published it was not exactly a best seller. No-one seemed to want to know. Perhaps the problem lay in the title. Would a book entitled "What has Happened to Standards in Scottish

Primary Schools" have sold better?

There are some circumstances in which national surveys can be useful for national policy-making. These are mainly when the national conscience is agitated by a specific educational issue. If there is concern about standards, then national surveys may play some useful role in providing empirical evidence. Even then the evidence may be ignored or rejected. An article by the secretary of the Scottish Confederation of British Industry (the Scottish equivalent of the National Association of Manufacturers) demonstrates that there is tendency among the protagonists in the debate to question the survey evidence. He said he knew the research evidence, he just did not believe it. (SED 1979). More recently The Economist (March 14th, 1986) had a lurid cover asserting "School Failed Them". Inside it pointed out that all the evidence we have - and it cited National and International (IEA) surveys - shows that secondary schools are more successful than they have ever been. What will be remembered, the lurid cover or the small print?

It is at least arguable that what parents and employers and others need is not more information of a general kind about standards but a better understanding of what it is that schools are setting out to achieve and how particular activities fit into these objectives. Employers need to know, as a basis for discussion with educational authorities, what Arithmetic the schools are trying to teach, and what communication skills are being taught. Parents need to know that apparently random play activities in Primary 1, or field studies in Secondary 4, are carefully thought out parts of an overall programme making a specified contribution to children's learning. They also need to be reassured that the schools their own children are attending do provide the same opportunities as are available in other schools. Surveys of national standards will not inform them on either of these points.

Conclusions

What can we learn from the Scottish experience? First, if we wish to make an impact on policy we must speak to policymakers about the issues that concern them when they concern them. That probably means short-term focussed studies rather than a long-term series of national surveys addressed to general issues. Second, what is sought is usually knowledge of specifics which are relevant to particular local circumstances. Studies on the grand scale may be interesting to researchers but utterly uninformative for policy-makers. Third, national tests will inevitably have curriculum backwash, and will involve pressure towards a centrally determined curriculum, no matter what we may wish.

Finally, research that is to have an impact on classroom practice must be teacher tested, i.e. based upon careful research and development in classrooms, not on generalisations. I am sceptical of the value of surveys, national or international. No matter how well they are designed, no matter how carefully the samples are drawn, no matter how thoughtfully the assessments are made, it seems to be that they are unlikely to address the crucial issues of the time, are likely to be forgotten and therefore ignored when the issues they investigated do become matters of concern, and worse, are likely to be misleading to any individual practitioner.

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